UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,084	04/06/2005	Michael Ryan	Mo-7278US/MD-02	8710

34947 7590 05/13/2008

LANXESS CORPORATION
111 RIDC PARK WEST DRIVE
PITTSBURGH, PA 15275-1112

EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
05/13/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,084	RYAN ET AL.	
	Examiner	Art Unit	
	DENNIS CORDRAY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-15,17-19 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-15,17-19 and 21* is/are rejected.

7)☒ Claim(s) *12 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's amendments and arguments, filed 3/11/2008, have overcome the rejections of claims under 35 U.S.C. 112, with the exception of the rejection of Claim 4. It is noted that, although Applicant indicates that Claim 4 has been amended, no amendment was actually made. The rejection of Claim 4 is maintained.

Applicant's amendments have overcome the rejections of Claims 1-6, 9-15 and 18-23 over Costanza et al. Costanza et al does not disclose that the dispersible regions also have strength agents in an amount relatively less than the strength regions. Therefore, the rejection has been withdrawn.

Applicant's amendments and arguments have overcome the rejections of claims as unpatentable over Sheppard et al in view of the instant disclosure or Orarian et al and evidenced by Drelich et al as previously set forth.

The rejections have been modified to address the amendments and to clarify the Examiner's position.

Oath/Declaration

The oath or declaration submitted 4/6/2005 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because:

> It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The originally submitted Oath recites the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56(a), rather than 37 CFR 1.56.

Claim Objections

Claims 12 and 19 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 12 recites that the dispersibility regions are devoid of or substantially devoid of any reacted cationic strength agent or reacted nonionic strength agent. Claim 12 depends from Claim 1, which recites that the dispersibility regions have a reacted cationic strength agent or a reacted nonionic strength agent in an amount that is relatively less than the agent in the strength regions. Claim 12 thus expands, rather than limits, the scope of Claim 1 to include embodiments wherein the dispersibility regions are devoid of or substantially devoid of the strength agents. A similar discussion applies for Claim 19, which depends from Claim 18.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 12 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites a "grid-shaped pattern of linearly shaped regions." It is not clear whether the linearly shaped regions are lines, elongated rectangles, bars or stripes, or some other shape. The Specification fails to define what is meant by linearly shaped regions. For the purpose of this examination, lines or any elongated rectangular shape will be assumed, including bars or stripes.

Claim 12 recites that the dispersibility regions are devoid of or substantially devoid of any reacted cationic strength agent or reacted nonionic strength agent. Claim 12 depends from Claim 1, which recites that the dispersibility regions have a reacted cationic strength agent or a reacted nonionic strength agent in an amount that is relatively less than the agent in the strength regions. It is not clear how the dispersibility regions can be devoid of or substantially devoid of the strength agents and yet are required to have the strength agents in an amount relatively less than in the strength regions. A similar discussion applies for Claim 19, which depends from Claim 18.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4-6, 9-15, 17, 18, 19 and 21 are rejected under 35 U.S.C. 103(a) as unpatentable over Sheppard et al (3702610) in view of Champaigne Jr. et al (3616797) and further in view of Orarian et al (6017418), Chen et al (6261679) or the admissions of the instant disclosure and as evidenced by and Drelich et al (3865775).

Claims 1, 4, 5, 9-13, 18, 19 and 21: Sheppard et al discloses a paper product comprising a fibrous substrate (wrapper) having a spaced pattern of water-dispersible adhesive or binder (strength agents), thus creating regions comprising a cationic or nonionic strength agent and dispersibility regions (regions devoid of the strength agent). After a short time of immersion in water, the binder loses its binding power thus permitting the web to disintegrate. The product treated with water, either wetted in use or during disposal, comprises a strength reducing material (water). The webs weigh about 14 g/sq. yard, or 15 gsm. The binder is printed in a grid consisting of two sets of parallel lines extending diagonally across the web at 45° in both directions and intersecting each other to provide a closed diamond pattern. The lines are about 1/16" wide and spaced about ¼" apart, thus cover about 25% of the web's surface (Abs; col 2, lines 3-20; col 3, lines 54-61). Other patterns are disclosed, such as wavy lines that are transversely or diagonally disposed. After being printed on the surface, the binder is inherently adjacent to a first surface.

The binder or adhesive comprises a colored dye to indicate dissolution of the adhesive in water. When the product is placed in the water in a toilet bowl for 30 seconds, the color fades to indicate that the adhesive has softened or dissolved. The product then breaks up or disintegrates upon flushing, thus is dispersible in a time greater than one second (col 1, lines 43-68; col 2, lines 28-34 and 41-59; col 3, lines 58-63). A paper product inherently has some dry strength or it could not be made in the first place on any kind of papermaking apparatus and will immediately disintegrate in any position other than laying flat and motionless.

Sheppard et al discloses an example wherein partially hydrolyzed polyvinyl alcohol (a nonionic binder) is used as the binder, but teaches that other water-soluble or water-dispersible adhesives can be used as well, including polyvinyl methylether, glycol. cellulose, cellulose glycolate, methyl cellulose and the like (col 2, lines 23-25; col 3, lines 47-52).

Sheppard et al discloses an alternative embodiment, further described in Champaigne Jr. et al, wherein a nonwoven fiber web is bonded by a water-soluble adhesive (dispersible region) and overprinted with a water-insoluble adhesive in a predetermined pattern of spaced segments (strength regions) (col 3, line 64 to col 4, line 9). Thus a web comprising strength regions having strength agent in an amount relatively more than in the dispersible regions is disclosed.

Champaigne Jr. et al discloses details of the alternative embodiment of a water-dispersible paper product described by Sheppard et al in the previous paragraph. The product comprises a fibrous wrapper and an absorbent layer or layers. The weight of

the wrapper is 14 g/sq. yard, or about 15 gsm. The water-soluble binder is polyvinyl alcohol or other water-soluble or water-dispersible binder, including polyvinyl methylether, glycol. cellulose, cellulose glycolate, methyl cellulose and the like. The water-insoluble binder include polyolefins, polyamides, cellulose acetates acrylates, lattices and the like. Thus, Champaigne Jr. et al discloses that other binders known in the art can be used. The water-insoluble binder is applied in rows of spaced linear segments. The segments of adjacent rows are disposed alternately, resembling courses of bricks, thus forming a grid of linear areas (Abs; col 1, line 59-col 2, line 56; col 2, lines 27-57; col 3, lines 45-56; col 4, lines 24-53). Champaigne Jr. et al discloses that the water-soluble binder is dissolved by excess water (thus serves as a temporary wet strength agent) while the water insoluble binder provides areas of permanent strength (col 3, lines 45-56).

Sheppard et al does not disclose the claimed strength agents or the wet strength of the paper product.

The instant disclosure admits that cationic and nonionic strength agents, such as cationic and nonionic glyoxylated polyacrylamides, polymeric amine-epichlorohydrin resins, polyethyleneimines, melamine formaldehydes, urea formaldehydes, dialdehyde starches, glyoxal, polvinyl amines, and vinyl amine copolymers are known in the art (p 3, line 28 to p 4, line 5).

Orarian et al discloses single- or multi-ply fibrous absorbent paper products in the form of napkin, towel, bathroom tissue or facial tissue (Abs). As a bathroom tissue, the paper product is inherently water dispersible. Orarian et al discloses many of the

claimed polymers for use as temporary wet strength agents (col 16, lines 35-44; col 18, lines 15-26).

Chen et al teaches that temporary and permanent wet strength agents are commonly used in the paper industry. Chen et al further teaches that some of the claimed strength agents (i.e.-cationic glyoxylated polyacrylamides and dialdehyde starches) are well known in the art as temporary wet strength agents that provide a paper product that loses more than 50% of its strength in water and becomes water dispersible (the polymers are soluble when incorporated in the product). Other claimed strength agents (i.e.-amine-epichlorohydrin resins, polyethyleneimines, urea formaldehydes, melamine formaldehydes) are well known in the art as permanent wet strength agents that provide a paper product that retains more than 50% of its strength in water (the polymers are insoluble when incorporated in the product) (col 39, line 41 to col 40, line 60).

The art of Sheppard et al, Champaigne Jr. et al, Orarian et al, Chen et al and the instant invention is analogous as pertaining to water-dispersible paper products. Absent evidence of special properties derived therefrom, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any of the claimed strength agents in the product of Sheppard et al in view of Champaigne Jr. et al and further in view of Orarian et al, Chen et al or the admissions of the instant disclosure as functionally equivalent, well known strength agents. It would further have been obvious to use the temporary wet strength agents taught by Chen et al or Orarian et al as the water soluble binders and the permanent wet strength agents as the overprinted

permanent strength binders in the embodiment taught by Sheppard et al and Champaigne Jr. et al. The paper product made thereby would have the claimed wet strength as taught by Chen et al (temporary wet strength agents provide a product that retains up to 50% of its strength in water while permanent wet strength agents provide a product that retains greater than 50% of its strength in water). Where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, the structure made obvious by the above combination is substantially identical to that of the claims, thus the claimed properties or functions would also have been obvious to one of ordinary skill in the art.

Claims 6 and 14: Sheppard et al discloses that the fibrous substrate is wrapped around absorbent pads to form a sanitary napkin or diaper (col 2, lines 35-40), thus provides at least two surfaces on opposite sides of the absorbent pad that comprise the strength regions.

Claim 15: Orarian et al discloses adding softening agents to papermaking fibers to interfere with the natural fiber-to-fiber bonding (strength reducing material) and lead to softer papers and tissues (col 2, lines 20-39; col 7, lines 12-16). It would have been obvious to one of ordinary skill in the art to add debonding or softening agents as a typical additive to make the paper product feel softer when applied to the skin.

Alternatively, when the product is wetted, it comprises a strength reducing substance (water).

Claim 17: Although an interlocking pattern of serpentine lines is not explicitly disclosed, such a pattern would have been readily envisioned, and therefore obvious, to one of ordinary skill in the art. Alternatively, Drelich et al teaches that well known printed bonding patterns applied to flushable fibrous webs include interconnecting or interlocking grids comprising straight or wavy lines extending transversely or diagonally across the webs and additionally, if desired, along the web (Abs; col 2, lines 24-30 and 42-46; col 17, lines 15-18).

Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as unpatentable over Sheppard et al in view of Champaigne Jr. et al and further in view of Orarian et al, Chen et al or the admissions of the instant disclosure and even further in view of Srinivasan et al (3913579).

Sheppard et al, Champaigne Jr. et al, Orarian et al and Chen et al do not explicitly disclose a strength agent on a second surface.

Srinivasan et al discloses a fibrous paper product comprising a flushable absorbent pad (second fibrous substrate) and an extremely flushable nonwoven fibrous cover (first fibrous substrate) bonded with a water-soluble resinous binder. The cover is reinforced with a water insoluble hot melt adhesive in spaced discrete lines in generally rectangular zones that cover approximately 30% of the total area of the cover to increase wet strength. The hot melt adhesive is applied to the inside of the cover so as to not adversely affect the softness and feel of the cover. In spite of the additional wet

strength imparted, the cover is readily disintegratable in a conventional toilet after soaking in excess water (Abs; col 1, lines 37-52; col 2, lines 6-29).

The art of Sheppard et al, Champaigne Jr. et al, Orarian et al, Chen et al, Srinivasan et al and the instant invention is analogous as pertaining to water-dispersible paper products. It would have been obvious at the time of the invention to one of ordinary skill in the art to further print a second strength agent in a pattern on the inside of the wrapper (a second surface) and create regions of additional strength in the paper of Sheppard et al in view of Champaigne Jr. et al and further in view of Orarian et al, Chen et al or the admissions of the instant disclosure and even further in view of Srinivasan et al to provide additional strength to the paper product while in use without adversely affecting the softness thereof.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as unpatentable over Sheppard et al in view of Champaigne Jr. et al and further in view of Orarian et al, Chen et al or the admissions of the instant disclosure and even further in view of Sun et al (6322665).

Sheppard et al, Champaigne Jr. et al, Orarian et al and Chen et al do not disclose a perforated fibrous substrate.

Sun et al discloses high wet performance tissue webs comprising an anionic polymeric strength agent or binder, suitable for paper towels, toilet tissue (inherently water-dispersible), absorbent pads, feminine care pads and the like (Abs; col 2, lines 41-46; col 11, lines 13-18; col 14, lines 44-50). The strength agent is applied in a pattern such as a rectilinear grid of lines (col 11, lines 33-38). The uncreped webs have

a basis weight of 10-80 gsm and a wet to dry strength ratio of at least 20% (col 14, lines 28-35 and 50-55). Typical physical treatments to the tissue web, before or after application of the binder, include being creped, apertured, slit, embossed or calendered (col 14,lines 38-40).

The art of Sheppard et al, Champaigne Jr. et al, Orarian et al, Chen et al Sun et al and the instant invention is analogous as pertaining to water-dispersible paper products. It would have been obvious at the time of the invention to one of ordinary skill in the art to provide slits or apertures in the paper product of Sheppard et al in view of Champaigne Jr. et al and further in view of Orarian et al, Chen et al or the admissions of the instant disclosure and even further in view of Sun et al as typical physical treatments to enhance the feel or performance thereof. It would also have been obvious to one of ordinary skill in the art that binders applied to a slit or apertured web would collect in the slits or apertures due to lowered resistance to penetration of the web at the openings.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/

Examiner, Art Unit 1791

/Eric Hug/

Primary Examiner, Art Unit 1791